Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method performed by a computer for computing modified discrete cosine transform of an input signal y(*k*), the method comprising the steps of:

receiving the input signal y(*k*);

~~computing~~ re-arranging data of the input signal y(*k*), as

$$x(k) = \begin{cases} [-y(26-k) - y(27+k)] \cdot b_k & \text{for} \quad 0 \le k \le 8 \\ [y(k-9) - y(26-k)] \cdot b_k & \text{for} \quad 9 \le k \le 17 \end{cases};$$

computing $$Y'(n) = \sum_{k=0}^{17} x(k) \cos[\frac{\pi}{36}(2k+1)n] \quad \text{for} \quad 0 \le n \le 17 \ ;$$

defining $Y(0) = Y'(0)/2$; and

~~computing~~ generating an output signal *Y (n)* according to

$$Y(n) = Y'(n) - Y(n-1) \text{ for } 1 \le n \le 17 ,$$

where ~~*y* is an input data~~, *x(k)* is re-arranged data for ~~*y*~~ the input signal y(*k*), *Y'* is discrete cosine transform of *x*, output signal *Y* is the modified discrete cosine transform of the input signal *y*, and b_k is a constant.

2. (Currently Amended) An MP-III encoder/decoder comprising:

means for receiving an input signal y(*k*);

means for ~~computing~~ re-arranging data of the input signal y(*k*), as

$$x(k) = \begin{cases} [-y(26-k) - y(27+k)] \cdot b_k & \text{for} \quad 0 \le k \le 8 \\ [y(k-9) - y(26-k)] \cdot b_k & \text{for} \quad 9 \le k \le 17 \end{cases};$$

means for computing $Y'(n) = \sum_{k=0}^{17} x(k) \cos[\frac{\pi}{36}(2k+1)n]$ for $0 \le n \le 17$;

means for defining $Y(0) = Y'(0)/2$; and

means for ~~computing~~ generating an encoded output signal *Y (n)* according to

$$Y(n) = Y'(n) - Y(n-1) \text{ for } 1 \le n \le 17,$$

where ~~*y is an input data*~~, *x(k)* is re-arranged data for ~~*y*~~ the input signal y(*k*), *Y'* is discrete cosine transform of *x*, output signal *Y* is the modified discrete cosine transform of the input signal *y*, and b_k is a constant.

3. (Currently Amended) The encoder/decoder of claim 2, further comprising:

means for receiving the encoded signal Y(k);

means for computing $Y''(k) = Y(k) \cdot b_k$ for $0 \le k \le 17$;

means for computing $y'''(n) = \sum_{k=0}^{17} Y''(k) \cos[\frac{\pi}{2*18}(2k+1)n]$ for $0 \le n \le 17$;

means for computing $y'(n) = \begin{cases} y'''(n+9) & \text{for} \quad 0 \le n \le 8 \\ 0 & \text{for} \quad n = 9 \\ -y'''(27-n) & \text{for} \quad 10 \le n \le 26 \\ -y'''(n-27) & \text{for} \quad 27 \le n \le 35 \end{cases}$;

means for defining $y(0) = \sum_{k=0}^{18-1} Y(k) \cdot c_k$; and

means for generating a decoded output signal $y(n)$ according to

$$y(n) = y'(n) - y(n-1) \text{ for } 1 \le n \le 35,$$

where Y'' is the modified discrete cosine transform of the encoded signal Y(k) ~~y~~ multiplied by b_k, y''' is the discrete cosine transform of Y'', and y' is re-arranged data for y'''.

4. (Currently Amended) An electronic circuit for fast computation of computing modified discrete cosine transform comprising:

a receiving circuit for receiving an input signal y(*k*);

a first circuit for ~~computing~~ re-arranging data of the input signal y(*k*), as

$$x(k) = \begin{cases} [-y(26-k) - y(27+k)] \cdot b_k & \text{for} \quad 0 \le k \le 8 \\ [y(k-9) - y(26-k)] \cdot b_k & \text{for} \quad 9 \le k \le 17 \end{cases};$$

a second circuit for computing $Y'(n) = \sum_{k=0}^{17} x(k) \cos[\frac{\pi}{36}(2k+1)n]$ for $0 \le n \le 17$;

a third circuit for defining $Y(0) = Y'(0)/2$; and

a fourth circuit for ~~computing~~ generating an output signal $Y(n)$ according to

$$Y(n) = Y'(n) - Y(n-1) \text{ for } 1 \le n \le 17,$$

where ~~y is an input data~~, $x(k)$ is re-arranged data for ~~y~~ the input signal y(*k*), Y' is discrete cosine transform of x, output signal Y is the modified discrete cosine transform of the input signal y, and b_k is a constant.

5. (Currently Amended) A method performed by a computer for computing modified inverse discrete cosine transform of an input signal Y(k), the method comprising the steps of:

receiving the input signal Y(k);

computing $Y''(k) = Y(k) \cdot b_k$ for $0 \le k \le 17$;

computing $y'''(n) = \sum_{k=0}^{17} Y''(k) \cos[\frac{\pi}{2*18}(2k+1)n]$ for $0 \le n \le 17$;

computing

$$y'(n) = \begin{cases} y'''(n+9) & \text{for} \quad 0 \le n \le 8 \\ 0 & \text{for} \quad n = 9 \\ -y'''(27-n) & \text{for} \quad 10 \le n \le 26 \\ -y'''(n-27) & \text{for} \quad 27 \le n \le 35 \end{cases} ;$$

defining $y(0) = \sum_{k=0}^{18-1} Y(k) \cdot c_k$; and

~~computing~~ generating an output signal $y(n)$ according to

$y(n) = y'(n) - y(n-1)$ for $1 \le n \le 35$,

where Y'' is the modified discrete cosine transform of ~~y~~ the input signal Y(k) multiplied by b_k, y''' is the discrete cosine transform of Y'', and y' is re-arranged data for y'''.

6. (Currently Amended) An electronic circuit for fast computation of ~~computing~~ modified inverse discrete cosine transform of an input signal Y(k) comprising:

a receiving circuit for receiving the input signal Y(k);

a first circuit for computing $Y''(k) = Y(k) \cdot b_k$ for $0 \le k \le 17$

a second circuit for computing - $y'''(n) = \sum_{k=0}^{17} Y''(k) \cos[\frac{\pi}{2*18}(2k+1)n]$ for $0 \le n \le 17$

a third circuit for computing

$$y'(n) = \begin{cases} y'''(n+9) & \text{for} \quad 0 \le n \le 8 \\ 0 & \text{for} \quad n = 9 \\ -y'''(27-n) & \text{for} \quad 10 \le n \le 26 \\ -y'''(n-27) & \text{for} \quad 27 \le n \le 35 \end{cases}$$

a fourth circuit for defining $y(0) = \sum_{k=0}^{18-1} Y(k) \cdot c_k$; and

a fifth circuit for ~~computing~~ generating an output signal $y(n)$ according to

$$y(n) = y'(n) - y(n-1) \text{ for } 1 \le n \le 35 ,$$

where Y'' is the modified discrete cosine transform of ~~y~~ the input signal Y(k) multiplied by b_k, y''' is the discrete cosine transform of Y'', and y' is re-arranged data for y'''.